Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Even) Examination May-2018

EN3ES01 Basic Civil Engineering

Programme: B.Tech. Branch/Specialisation: All

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. M 25 grade of concrete approximates **1**
(a) 1:3:6 mix (b) 1:1:2 mix (c) 1:2:4 mix (d) 1:1½:3 mix

ii. The workability of concrete can be improved by addition **1**
(a) Iron (b) Zinc (c) Sodium (d) Sulphur

iii. True stress represents the ratio of **1**
(a) Average load and average area
(b) Average load and maximum area
(c) Maximum load and maximum area
(d) Instantaneous load and instantaneous area

iv. What will be the relation between E(Young's modulus of elasticity) and bulk modulus K, when μ (Poison's ratio) = 0.25 **1**
(a) E=K (b) E=2K (c) E=1.5K (d) E=K=0

v. The safe bearing capacity of the soil can be improved by **1**
(a) Increasing the depth of foundation
(b) Grouting the soil
(c) Draining the soil if water table is very near the base of footing
(d) All the above.

vi. The most commonly used deep foundation in buildings **1**
(a) Well foundation (b) Pile foundation
(c) Raft foundation (d) Grillage foundation

vii. Levelling across the river is done by **1**
(a) Fly levelling
(b) Reciprocal levelling
(c) Trigonometrical levelling
(d) Cross levelling

P.T.O.

viii. A series of closed Contour lines on the map with lower values inside them represents a **1**
(a) Hill (b) Ridge (c) Depression (d) Steep slope

ix. Which of the following is a rigid dam **1**
(a) Gravity dam (b) Earth dam
(c) Rockfill dam (d) Coffer dam

x. The pH value of samples of water is as follows. Which one is fit to drink: **1**
(a) 5.6 (b) 6.5 (c) 9 (d) 9.5

Q.2 i. Explain briefly the scope of the following Civil Engineering fields. **2**
(a) Structural Engineering (b) Transportation Engineering.

ii. Discuss the requirements of good quality Bricks. **8**

OR iii. What are the factors affecting properties of cement? **8**

Q.3 i. Explain different type of force systems? **2**

ii. Three forces F_1, F_2 and F_3 are acting on a body a shown in Figure-01 and the body is in equilibrium. If the magnitude of force F_3 is 250 N, find the magnitudes of force F_1 and F_2. **8**

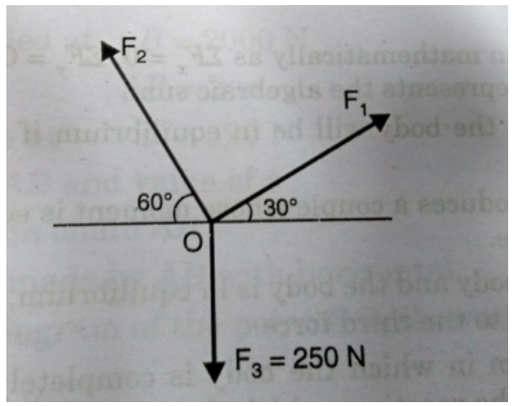

Figure-01

OR iii. An I-section has the following Dimensions in mm units: **8**

Bottom Flange	:	300 × 100
Top Flange	:	150 × 50
Web	:	50 × 300

Determine mathematically the position of Centre of Gravity of the section.

Q.4 i. What are the different components of a building? **2**

ii. What do you mean by Pitched Roof? Explain in detail with neat sketch **8**

OR iii. What are the characteristics of a pile foundation? Describe very briefly the various types of piles generally used for foundation. **8**

Q.5 i. Discuss in brief the principles of surveying. **2**

ii. Describe the different types of chains used in survey indicating the relative merits of each. **8**

OR iii. Define a contour? State the various characteristics of contour lines. **8**

Q.6 i. Enlist various points for site selection of Dam site. **2**

ii. What do you mean by sewage? Explain all component and functions of Septic Tank. **8**

OR iii. Enlist different Indian Standards of drinking water. **8**

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Marking Scheme
EN3ES01 Basic Civil Engineering

Q.1	i.	M 25 grade of concrete approximates (b) 1:1:2 mix		**1**
	ii.	The workability of concrete can be improved by addition (b) Zinc		**1**
	iii.	True stress represents the ratio of (d) Instantaneous load and instantaneous area		**1**
	iv.	What will be the relation between E(Young's modulus of elasticity) and bulk modulus K, when μ (Poison's ratio) = 0.25 (c) E=1.5K		**1**
	v.	The safe bearing capacity of the soil can be improved by (d) All the above.		**1**
	vi.	The most commonly used deep foundation in buildings (b) Pile foundation		**1**
	vii.	Levelling across the river is done by (b) Reciprocal levelling		**1**
	viii.	A series of closed Contour lines on the map with lower values inside them represents a (c) Depression		**1**
	ix.	Which of the following is a rigid dam (a) Gravity dam		**1**
	x.	The pH value of samples of water is as follows. Which one is fit to drink: (b) 6.5		**1**
Q.2	i.	(a) Structural Engineering (b) Transportation Engineering.	1 mark 1 mark	**2**
	ii.	Requirements of good quality Bricks. 1 mark for each qualities	 (1 mark * 8)	**8**
OR	iii.	Factors affecting properties of cement With explanation 2 marks each Without explanation 1 mark each	 (2 marks * 4)	**8**
Q.3	i.	Any two type of force systems 1 mark each with explanation and diagram		**2**
	ii.	Lami's theorem Value of F_1 and F_2 2.5 marks for each (2.5 marks *2) OR Resolution method 4 marks each	3 marks 5 marks 8 marks	**8**
OR	iii.	Diagram Formula Value put up Calculation	1 mark 2 marks 3 marks 2 marks	**8**
Q.4	i.	Components of a building (six components) 1/3 of each components		**2**
	ii.	Pitched Roof Neat sketch	4 marks 4 marks	**8**
OR	iii.	Characteristics of a pile foundation Types of piles generally used for foundation. Two marks for each (2 mark * 3)	2 marks 6 marks	**8**
Q.5	i.	Principles of surveying. 1 mark for each	 (1 mark * 2)	**2**
	ii.	Types of chains 1 mark for each types 1 mark for each explanation	 (1 mark * 4) (1 mark * 4)	**8**
OR	iii.	Contour Characteristics of contour lines (Any six)	2 marks 6 marks	**8**
Q.6	i.	Points for site selection of Dam site. 0.5 mark for each	 (0.5 mark * 4)	**2**
	ii.	Sewage Component Functions of Septic Tank. Diagram	2 marks 2 marks 2 marks 2 marks	**8**
OR	iii.	Enlist different Indian Standards of drinking water. 1 mark for each standards	 (1 mark * 8)	**8**

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